



**CITY OF NORTHAMPTON, MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS**

**125 Locust Street  
Northampton, MA 01060**

**413-587-1570  
Fax 413-587-1576**

**Edward S. Huntley, P.E.**  
*Director*

## Memorandum

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To: Mayor David Narkewicz  
From: Ned Huntley, P.E.  
Copy: Public Works Commission  
Date: April 1, 2015  
Re: Pavement Projects for FY 2016

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Public Works has developed a plan to improve the condition of several City streets in this fiscal year (FY2016). This memorandum identifies the selected streets, the approximate budget and cost of improvements, and the current schedule for bidding and construction.

For FY16, the City anticipates utilizing approximately \$1.5 million from state Chapter 90 funds and \$500,000 in local capital improvements money for street pavement improvement projects. The types of improvements proposed and the streets where the work is planned are described below.

Generally, the DPW uses data and analysis provided through the Vanasse Hangen Brustlin, Inc. (VHB) Pavement Management Program as the primary guide for pavement management selection. In addition, DPW applies our field knowledge of roadway usage, current repair conditions, and consideration of recent and upcoming underground utility projects when developing a list of streets for pavement improvement.

### **CRACK SEALING**

Crack sealing pavement is the process of cleaning out pavement cracks using compressed air and applying a heated, liquefied asphalt-fiber sealant followed by the hand application of boiler slag to prevent pickup of the sealant by vehicles. Crack sealing prolongs the service life of pavement for about 5 years reducing the amount of water entering into the pavement. The selection of streets to be crack sealed is intended to maintain newer roads in good condition for as long as possible. The streets to be crack sealed this year were determined by reviewing the pavement condition index (PCI) for City streets and developing an estimated list of streets that could be crack sealed within the \$150,000 budget for this work. The list of streets follows:

<u>Street Name</u>	<u>From Segment</u>	<u>To Segment</u>	<u>Length (ft)</u>	<u>PCI</u>
BEDFORD TERRACE	ELM ST	STATE STREET	676	89
BRIDGE ROAD	KING STREET	JACKSON STREET	1268	73
BRIDGE ROAD	JUNIPER ST	FRANCIS STREET	9388	74
BROOKWOOD DRIVE	FLORENCE ROAD	SANDY HILL ROAD	1558	87
BURTS PIT ROAD	FOREST GLEN DR	RYAN ROAD	2288	88
BURTS PIT ROAD	2766' W OF PRINCE ST	66' W OF CLEMENT ST	2080	88
CARDINAL WAY	WESTHAMPTON ROAD	BURTS PIT RD	3822	86
CHESTERFIELD ROAD	RESERVOIR RD	KENNEDY RD	1546	84
CHESTNUT STREET	HIGH ST	BRIDGE RD	2360	89
CHESTNUT STREET	PINE STREET	MAIN STREET (FLORENCE)	569	88
COLES MEADOW ROAD	MARIAN ST +2150	MARIAN ST +2950	796	91
COLUMBUS AVENUE	SOUTH ST	DEAD END	1103	89
CORTICELLI STREET	PINE STREET	NONOTUCK ST	454	85
CRESCENT STREET	ROUND HILL ROAD	PROSPECT ST	1417	92
DIMOCK STREET	SPRING STREET	CHESTERFIELD RD	1090	86
DRURY LANE	2151' S OF LOUDVILLE RD	TOWNLINE	143	90
DRURY LANE	470' S OF LOUDVILLE RD	896' S OF LOUDVILLE RD	426	87
ELM STREET	MAIN & WEST STS	NORTH ELM ST	4830	76
FIFTH AVENUE	FRANKLIN ST	MASSASOIT ST	433	91
FLORENCE ROAD	RYAN ROAD	BURTS PIT RD	5996	86
FRANKLIN STREET	ELM ST	PROSPECT ST	2499	87
FRONT STREET	GROVE AVENUE	LEONARD ST	1111	85
FRUIT STREET	OLD SOUTH ST	SMITH ST	1039	87
HARRISON AVENUE	ELM ST	DRYADS GREEN	1132	86
HATFIELD STREET NORTH	BRIDGE RD	COOKE AVENUE	1337	87
HENSHAW AVENUE	773' N OF ELM ST	CRESCENT ST	661	92
LADD AVENUE	RIVERSIDE DR	DEAD END	838	87
LEONARD STREET	HAYDENVILLE ROAD	FRONT STREET	1770	86
LOCUST STREET	PROSPECT ST	BERKSHIRE TER	3370	75
MAIN ST LEEDS	56'N OF ARCH ST	SPRING ST	1097	87
MAIN STREET	BRIDGE ST	WEST ST	2247	79
MYRTLE STREET	STATE STREET	KING ST	572	86
NORTH ELM STREET	LOCUST ST	BRIDGE RD	2931	83
O'DONNELL DRIVE	RYAN ROAD	CAHILLANE TERR	689	86
OLD SOUTH STREET	CONZ ST	SOUTH ST	678.5	77
OLD WILSON ROAD	FLORENCE ROAD	ROCKY HILL ROAD	4000	85
OLIVE STREET	SOUTH ST	FORT ST	1263	88
ORCHARD STREET	BRIDGE ST	NORTH ST	1202	89
PINE STREET	NONOTUCK STREET	PARK ST	760	81
PLATINUM CIRCLE	BURTS PIT RD (EAST)	BURTS PIT RD	1395	89
REVELL AVENUE	SOUTH ST	DEAD END	805	86
SOUTH MAIN STREET	LOCUST ST	PINE ST	159	87
STATE STREET	MAIN ST	FINN STREET	2854	86
STRAW AVENUE	LOCUST ST	DEAD END	1601	89
UPLAND ROAD	LEONARD STREET	GROVE AVE	1133	87
VILLAGE HILL ROAD	RTE 66	DEAD END	1050	91
BEDFORD TERRACE	ELM ST	STATE STREET	676	89
BRIDGE ROAD	KING STREET	JACKSON STREET	1268	73

Crack sealing Schedule: Bids for the crack sealing were opened on March 5, 2015. The low bid contractor was Sealcoating, Inc. from Braintree, MA, and the value of the contract is \$150,000. It is expected that crack sealing work will begin in June 2015, after these City streets have been swept.

## MILL AND OVERLAY

This process mechanically mills and removes the top 2-3 inch layer of pavement leaving curbing, catch basins and manholes in place. These structures are adjusted as needed to match the final pavement grade. A new top course of pavement is installed after a tack coat of bitumen is applied as a bonding agent with the base course. The repair life is typically 12-15 years. The mill and overlay locations are determined by reviewing the streets that fall within the top Benefit Value tier as calculated by the VHB software. Most of the streets selected are within the top range of benefit value as calculated by the pavement management software. This year we have added sections of Finn Street, Clark Street and Prospect Street, which appear on the VHB reclaim recommended list but are at the threshold for mill and overlay.

<u>Mill and Overlay Streets</u>	<u>Estimated Cost</u>
1. Prospect Street: Murphy Terrace to Finn Street	\$230,000
2. Finn Street: Prospect Street to King Street	\$58,000
3. Maple Street: North Main Street to Pine Street	\$80,000
4. Nonotuck Street: Corticelli Street to Pine Street	\$30,000
5. Pine Street: Nonotuck Street to Spring Street	\$37,000
6. Florence Road: Spring Street to Ryan Road	\$29,000
7. Pomeroy Terrace: Bridge Street to Hancock Street	\$50,000
8. Clark Avenue: Old South Street to 518' Westerly	\$27,000
9. Hampden Street: South Street	\$31,000
10. North Elm Street: Locust Street 1020' Northerly	\$128,000
11. Massasoit Street: Elm Street to Prospect Street	\$94,000
12. Woodlawn Avenue: Elm Street to Prospect Street	\$80,000
13. Milton Street: Elm Street to Federal Street	<u>\$43,000</u>
TOTAL	\$917,000

Mill and Overlay Schedule: Bid specifications for the mill and overlay projects will be part of a Pavement Contract that is currently being prepared and bidding is expected to occur in April or early May. The paving schedule for each street will be determined once a contract has been awarded. We will provide schedule updates through the summer.

## COLD-IN-PLACE RECYCLING & OVERLAY

Cold-in-place recycling is a treatment train process where a milling machine mills up to a 4" depth of pavement and is connected to an asphalt paving machine that immediately recycles the milled asphalt with added bitumen and aggregate, laying down a rejuvenated pavement surface. The surface is somewhat open graded and includes an HMA overlay to complete the work. This process can be used on roads that would require reclaiming and is a significantly less expensive treatment. However, its application is limited to roadways that do not have utility structures. DPW staff have viewed this process in the field and found it effective, but it will be the first time that it has been used in the City.

<u>Cold-in-Place Recycling &amp; Overlay Only Streets</u>	<u>Estimated Cost</u>
1. Reservoir Road: Chesterfield Road to Bridge N-19-031	\$280,000
2. Chesterfield Road: Reservoir Road to Spring Street	<u>\$209,000</u>
TOTAL	\$489,000

Cold-in-Place Recycling & Overlay Schedule: The cold-in-place recycling and overlay projects will be included in the Pavement Contract discussed above.

## RECLAIM

A street that is reclaimed is mechanically ground which removes all existing layers of pavement. The material can be used to repair or supplement the road's gravel base as needed. Excess material is stockpiled for use by the DPW. The road base is graded and compacted before base and top coats of new pavement are installed. Structures are adjusted and may be rebuilt if required. The repair life is 18-22 years. DPW uses information from the VHB asset management to determine what streets are appropriate for reclaiming and we use the VHB benefit value as a guide to prioritizing street candidates for reclaiming. For this year Maple Street from Pine to Nonotuck Streets, Bridge Street from the recently repaved section ending near Orchard Street to the State layout at Grant Avenue and a small section of Audubon Road are scheduled for reclaiming.

<u>Reclaim Streets</u>	<u>Estimated Cost</u>
Maple Street: Pine Street to Nonotuck Street	\$36,000
Audubon Road: Kennedy Road to 570' Easterly	<u>\$47,000</u>
TOTAL	\$83,000

Reclaim Schedule: The reclaim projects will be included in the Pavement Contract discussed above.

## RUBBERIZED CHIP SEAL

For roads in generally good condition, this specialized process provides a new wearing course composed of small aggregate, asphalt cement and 10-20% rubber. It seals the entire road surface, increases friction and prolongs the roadway life by about 10 years. Taking the shorter repair life into consideration, it costs significantly less than mill and overlay. This treatment was applied on Barrett Street last year and appears to be holding up well. Approximately 4,100 feet of Sylvester Road from Kennedy Road to the recently repaved section and approximately 3,100 feet of Audubon Road toward the Kennedy Road end have been identified as good candidates to be repaired in this manner. The estimated cost for these street sections is \$154,000.

<u>Rubberized Chip Seal Streets</u>	<u>Estimated Cost</u>
Sylvester Road: End of 2014 Paving to Kennedy Road	\$86,000
Chesterfield Road: Reservoir Road to Sylvester Road	\$33,000
Audubon Road: Near #214 to 570' easterly of Kennedy Road	<u>\$68,000</u>
TOTAL	\$187,000

Rubberized Chip Seal Schedule: This project is currently out to bid with bids scheduled to be opened on March 18, 2015

## BOX PAVING

Based on experience from FY15 projects, it has been determined that box paving by DPW crews is most efficient use on short sections of roadway that are in need of repair. DPW crews will select appropriate roadway sections to box pave in FY16 as scheduling allows.

REPAVING AND ASSOCIATED WORK  
WITHIN THE LIMITS SHOWN IS SCHEDULED  
TO BEGIN THIS SUMMER

- MILL AND OVERLAY
- RECLAIM
- RUBBERIZED CHIP SEAL
- COLD IN PLACE RECYCLING
- 2014 PAVING

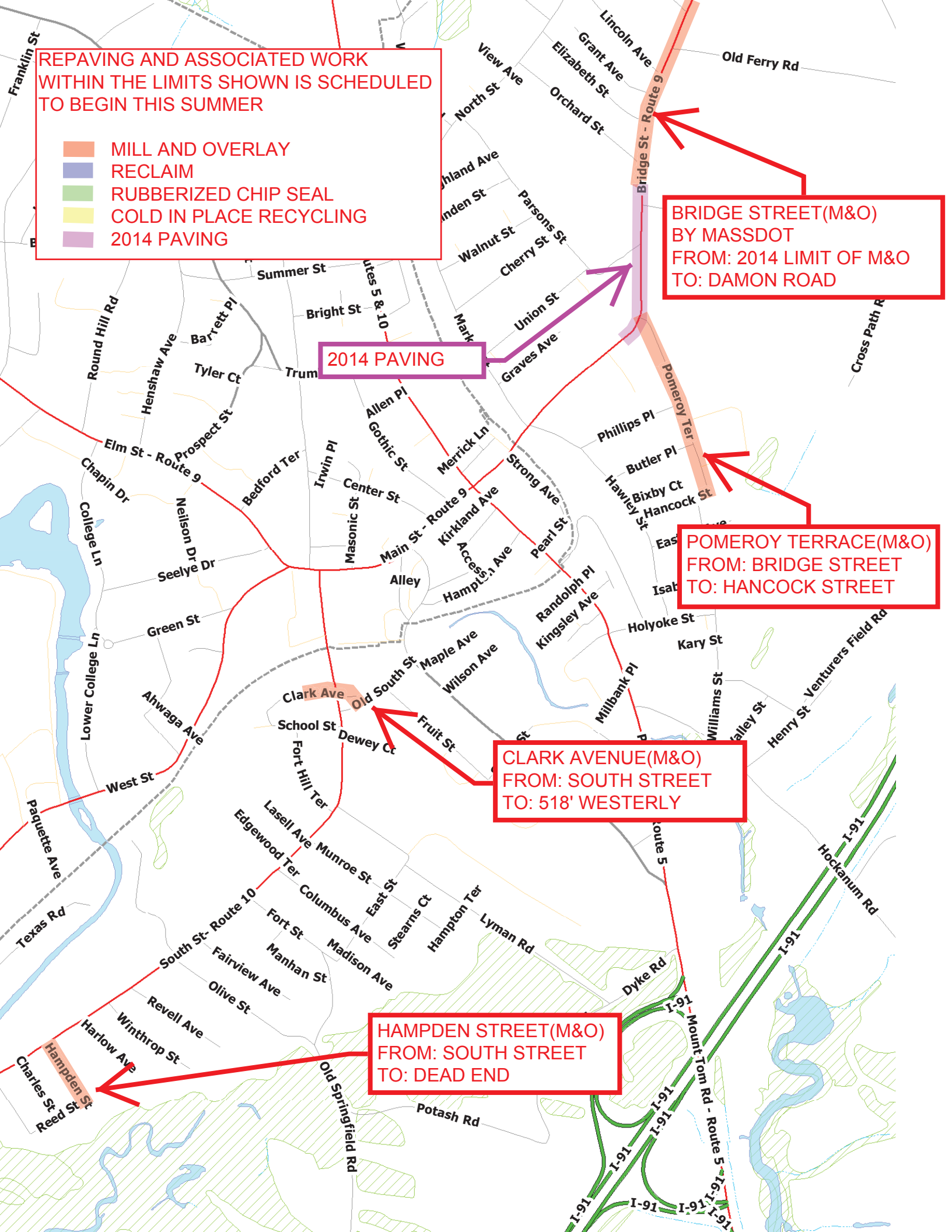
2014 PAVING

BRIDGE STREET(M&O)  
BY MASSDOT  
FROM: 2014 LIMIT OF M&O  
TO: DAMON ROAD

POMEROY TERRACE(M&O)  
FROM: BRIDGE STREET  
TO: HANCOCK STREET

CLARK AVENUE(M&O)  
FROM: SOUTH STREET  
TO: 518' WESTERLY

HAMPDEN STREET(M&O)  
FROM: SOUTH STREET  
TO: DEAD END



REPAVING AND ASSOCIATED WORK WITHIN THE LIMITS SHOWN IS SCHEDULED TO BEGIN THIS SUMMER

- MILL AND OVERLAY
- RECLAIM
- RUBBERIZED CHIP SEAL
- COLD IN PLACE RECYCLING
- 2014 PAVING

2014 PAVING

NORTH ELM STREET(M&O)  
FROM: LOCUST STREET  
TO: 1360' SOUTHERLY

PROSPECT STREET(M&O)  
FROM: 2014 LIMIT OF M&O  
TO: FINN STREET

MASSASOIT STREET (M&O)  
FROM: ELM STREET  
TO: PROSPECT STREET

FINN STREET(M&O)  
FROM: KING STREET  
TO: PROSPECT STREET

WOODLAWN AVENUE (M&O)  
FROM: ELM STREET  
TO: PROSPECT STREET

MILTON STREET (M&O)  
FROM: ELM STREET  
TO: FEDERAL STREET

REPAVING AND ASSOCIATED WORK  
WITHIN THE LIMITS SHOWN IS  
SCHEDULED TO BEGIN THIS SUMMER

- MILL AND OVERLAY
- RECLAIM
- RUBBERIZED CHIP SEAL
- COLD IN PLACE RECYCLING
- 2014 PAVING

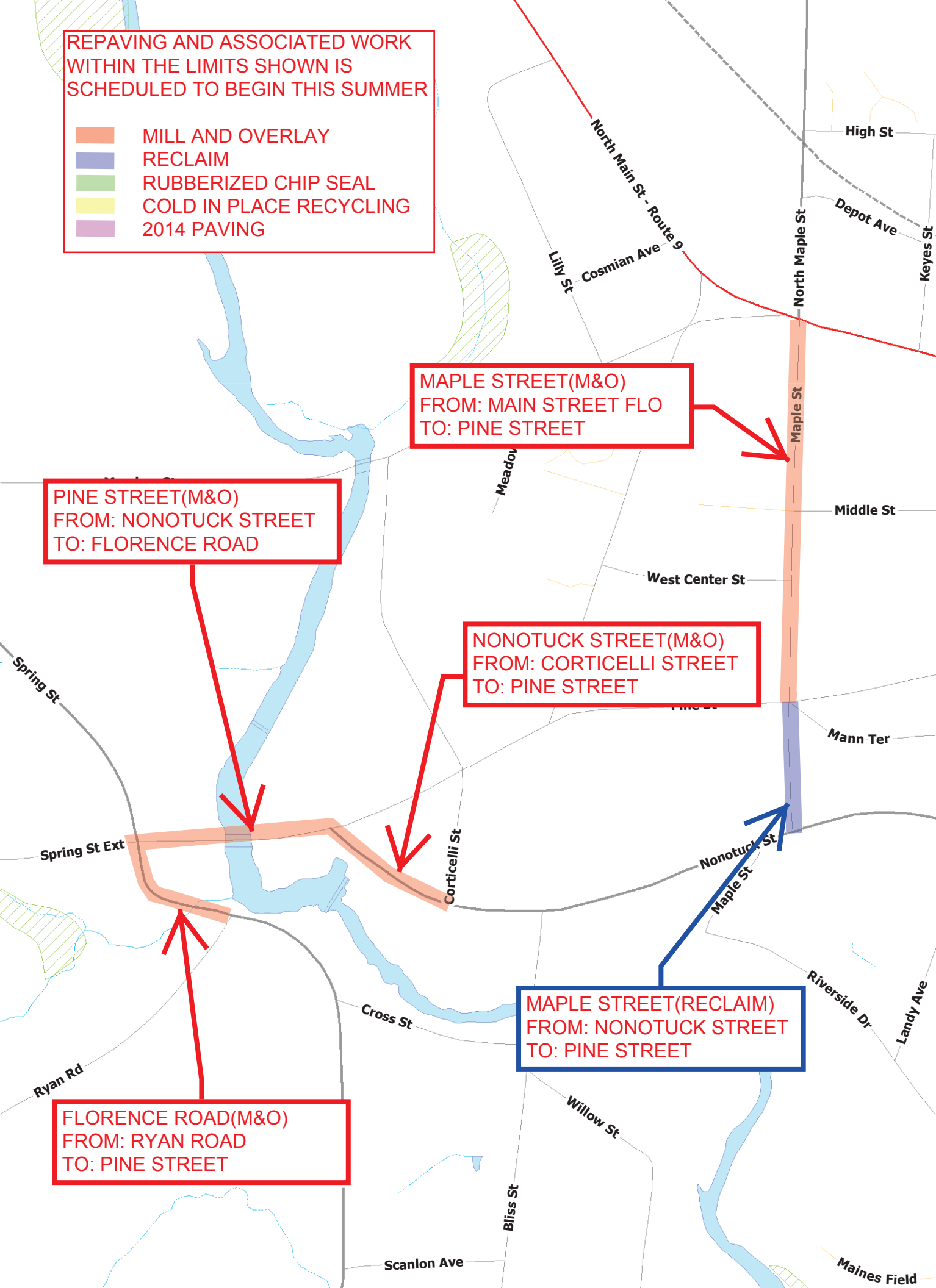
MAPLE STREET(M&O)  
FROM: MAIN STREET FLO  
TO: PINE STREET

PINE STREET(M&O)  
FROM: NONOTUCK STREET  
TO: FLORENCE ROAD

NONOTUCK STREET(M&O)  
FROM: CORTICELLI STREET  
TO: PINE STREET

MAPLE STREET(RECLAIM)  
FROM: NONOTUCK STREET  
TO: PINE STREET

FLORENCE ROAD(M&O)  
FROM: RYAN ROAD  
TO: PINE STREET





AUDUBON ROAD(RCS)  
FROM: 570' EAST OF KENNEDY ROAD  
TO: 3100' EASTERLY

AUDUBON ROAD(RECLAIM)  
FROM: KENNEDY ROAD  
TO: 570' EASTERLY

RESERVOIR ROAD(CIPR)  
FROM: CHESTERFIELD ROAD  
TO: BRIDGE

CHESTERFIELD ROAD(CIPR)  
FROM: RESERVOIR ROAD  
TO: SHEPARD'S HOLLOW

CHESTERFIELD ROAD(RCS)  
FROM: SYLVESTER ROAD  
TO: RESERVOIR ROAD

SYLVESTER ROAD(RCS)  
FROM: 2014 LIMIT OF RECLAIM  
TO: CHESTERFIELD ROAD

REPAVING AND ASSOCIATED WORK  
WITHIN THE LIMITS SHOWN IS SCHEDULED  
TO BEGIN THIS SUMMER

- MILL AND OVERLAY
- RECLAIM
- RUBBERIZED CHIP SEAL
- COLD IN PLACE RECYCLING
- 2014 PAVING

2014 PAVING

